Dash & Dot

Lesson Plans

1. https://teachers.makewonder.com/lessons/dashs-world-adventure

Dash criss-crosses the map in this fun lesson on geography, creative writing, and mathematics. Students will create or finish a creative story telling of Dot and Dash's adventures in traveling the world. Students will measure distances and estimate angles in order to program the robots to move, flash, and make sounds to act out their story.

2. https://teachers.makewonder.com/lessons/dash-robot-life-cycles-steam-project

Students will work in groups of 3 - 4 students create a Life Cycle project. They will research the life cycle of their plant or animal, write the most important facts of each stage, label it on the presentation poster, measure and program their Dash robots to teach others about their life cycle.

3. http://www.teaching.com.au/resources/static/main/PDF/DW001_Dash_&_Dot_Lesson_Plans.pdf

In this lesson, students will be introduced to Dash & Dot, programmable robots that help kids learn the fundamental concepts of problem solving and computer science. They will also get an overview of Blockly, a drag-and-drop visual programming tool and begin to think of the possibilities of programming robot behaviors and reactions.

4. https://teachers.makewonder.com/lessons/introduction-to-dash--dot

In this lesson, students will get to know Dash and Dot while being introduced to the ideas of Robotics and Programming.

5. https://teachers.makewonder.com/lessons/a-slice-of-number-line-pie

Already knowing fractions of pizza and pie, students will "roll out" those models to connect them to the number line. In this lesson, students will use Dash to model fractions on a number line.

Videos

1. https://youtu.be/lMrq3MZjqX4 - This is a video by a board memebr on Dash and Dot but she made a video herself experimenting with Dash and Dot with children. It is a good self-made video that shows some information about how they work.
2. https://youtu.be/9nM3WsevvfM - This is a kid friendly video (The Dash and Dot Show), super cute, made by Wonder Workshop, who is the maker of Dash and Dot. It's a great fun video. There are many more videos made by them to tell you more information about Dash and Dot.
3. https://youtu.be/C_MbX77wDGI - A very enthusiastic teacher showing us what is so cool about Dash and Dot. I liked it because it is from her perspective and shows us why we would want this is the classroom.
4. https://youtu.be/XluvddnVqmg - This shows a video about using Dash and Dot through playing a game with addition strategy. It's great to see kids actually use the product to learn.

5. https://youtu.be/LDGHa4DcSJU - A great video showing 1st graders writing the code for Dash and Dot. It shows their mistakes and how they have to go back and recode for the desired outcome.

Sphero

Lesson Plans

1. http://augmentedrealityineducation.weebly.com/uploads/1/5/1/1/15112734/teacher_guide_polygonsandangles.pdf
   This is a great lesson plan for students who are learning about shapes; specifically polygons. Students use the Sphero to create and draw polygons.
2. http://augmentedrealityineducation.weebly.com/uploads/1/5/1/1/15112734/macrolab4_teacherguide.pdf
   This lesson plan focuses on percentages. Using quantitative and qualitative results, students are to set the speed at 100%, then 50 %, and so on. The question or focus is this: “to figure out what percentage of 100% speed is required to move Sphero to a certain position”.
3. http://augmentedrealityineducation.weebly.com/uploads/1/5/1/1/15112734/orbbasic3_teacherguide.pdf
   This lesson is “Sensors and Random”. It is a lesson that focuses on using Sphero to explore computer science concepts of reading sensors. They will be able to create their own simple programs for sphero and then be able to make it more challenging by adding obstacles.
4. http://augmentedrealityineducation.weebly.com/uploads/1/5/1/1/15112734/teacher_guide_orbbasic_2_circles_and_if.pdf
   This lesson focuses on multiple things; it focuses on circles, finding and fixing errors, and using if/then statements. Students will program the Sphero to go in a circle until there is an error. When the error occurs, students are to use an if/then statement to determine how to fix their error. I think this is a good lesson for introducing if/then statements, as well as combining math and science.
5. http://augmentedrealityineducation.weebly.com/uploads/1/5/1/1/15112734/teacher_guide_timespeedanddistance.pdf
   In this lesson “students will use Sphero to show that there is a linear relationship between time, speed, and distance”. Students will program Sphero to go a certain distance, at a certain speed, and in a certain amount of time. Then, to find the relationship between the two, they will use division. And finally, students will then be challenged to program Sphero to get back to where it started.

Videos

1. https://www.youtube.com/watch?v=0yQYr7CIxBc

- This video talks about sphero from a teacher’s point of view. I liked it because you can see how it transformed his classroom and i didn’t realize how many different things you can do with sphero.

2. https://www.youtube.com/watch?v=6-5KPevj8dQ
- This video isn't really full of information, but it was a sphero company video and i liked it because it was funny to listen to what the children thought about it.
3. https://www.youtube.com/watch?v=oTtSOC8gpQo
- I thought this was a good video to show how you can create different problems for subjects like science, for example. He tried to see what it could do, how much weight it could pull, and the acceleration speed when pulling objects of different weight.
4. https://www.youtube.com/watch?v=omYdrzx6qbU
- This video brings in coding. I liked that it describes what coding is and the different apps you can use for the sphero.
5. https://www.youtube.com/watch?v=k2yGUfIDBhM
- I really liked this video because it was a "chariot race" between students in a classroom. They got to design their own cars for the sphero to race and then they put them to the test!

Robotics

Articles from Newsela or Scholastic News or other *for Children*

Newsela https://newsela.com/
ReadWorks http://www.readworks.org/
Smithsonian Tween Tribune http://tweentribune.com/
Dogo News http://www.dogonews.com/

1. https://newsela.com/articles/robotics-math/id/6312/
   When Math is Too Easy Robotics Offers Challenges. One school describes how students who test out of certain units in math get an opportunity to learn robotics instead. I think students would be excited about testing out of math and learning about robots!
2. http://www.readworks.org/passages/robo-helpers
   Robot Helpers. An Informational text article for 4th grade level about how scientists designed a robot to walk like a toddler - includes text dependent questions as well. I would want students to know the different types of things robots can do.
3. http://tweentribune.com/article/junior/want-have-robot-take-home/
   Want to Have a Robot to Take Home? - describes a program where a library let's kids check out robots to use at home for learning to code. What a great idea!
4. https://www.dogonews.com/2016/5/3/meet-root-a-robot-that-teaches-kids-to-code
   Meet Root, A Robot that Teaches Kids to Code - This article describes a robot that isn't available for purchase yet, but looks like it would be a great tool to teach programming with an iPad or other tablet. I like the look of what it can do more than another robot that I've seen called Ozobot - seems like a good alternative.
5. https://newsela.com/text-sets/5360/science--robots
   This is a link to a text set of 20 articles all about robots called Mr. Roboto. I really like how it includes articles for students to choose from that might be of more interest to

different kids… artificial limbs, undersea explorers, emergency responders, hurricane forecasting, and more.

NSTA Resources

1. http://static.nsta.org/files/ss0603_62.pdf Girls, Robots and Science Edcuation - for the middle school level - I like anything to get girls engaged in critical thinking.
2. http://static.nsta.org/files/sc1502_50.pdf From Droughts to Drones - describes an after-school environmental club for 6th graders that uses drones to teach about environmental science. Kids need opportunities to explore real-world issues that they can make an impact on and they'd love using flying drones.
3. http://learningcenter.nsta.org/resource/default.aspx?id=10.2505%2f20%2fLP003 Olympic Movement and Robotic Design Robotics Guide - describes the use of a video that shows how precision and practice used by olympic athletes is similar to how a robot, quardrocopter, improves it's tasks with feedback. I think it's a great analogy to show students how with practice you can improve anything from playing an instrument, doing school work, etc.
4. http://static.nsta.org/files/sc0210_38.pdf Real-World Robotics (2002) - describes how 4th and 5th grade students worked with engineering students to build, design, and program robots using ROBOLAB. The kids used robots and it seems to be a precursor to a lot of the packaged robots Lego has out there like Mindstorms and WeDo. Love the idea of college students working with elementary kids!
5. http://static.nsta.org/files/tst1601_8.pdf Science 2.0: Do I Need a Robot? Describes telepresence robotics (new to me!). One called "The Double" has an iPad connected to a wheeled stand (like a SegwaY) that moves around a classroom and anyone with an internet connection can be viewed talking on the device and participate in class activities just like they were in the classroom. Seems like a cool way to bring in guest speakers or to interact with a class if you have to be absent, etc.